

Application No. 10/609,162
Response to Office Action

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R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claim 2 has been amended to be rewritten in independent form to include all of the limitations of its former parent claim 1, which has been canceled.

In addition, claims 2, 5, 6, 8, 10 and 13-27 have been amended to reflect the cancellation of claim 1 as well as to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put the claims in better form for issuance in a U.S. patent. The informalities pointed out by the Examiner have all been corrected.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered and that the rejection under 35 USC 112 be withdrawn.

THE PRIOR ART REJECTION

Claims 1, 4-20 and 23-27 were rejected under 35 USC 102 as being anticipated by JP 8-1916; claims 1, 2, 4, 7, 9, 11, 12, 17-23 and 25-27 were rejected under 35 USC 102 as being anticipated by USP 4,633,370 ("Hamuro et al"); and claims 1-4, 7-23 and 25-27 were rejected under 35 USC 102 as being anticipated by

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USP 6,216,419 ("Sakurai"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claim 2 a plate-like protective film is provided which comprises: a plate-like material main body which protects a plate-like material structure, and projections which are arranged continuously in predetermined areas of the plate-like material main body and which are formed by respective parts of the plate-like material main body to extend from a base portion of the plate-like material main body. As recited in amended independent claim 2, each of the projections comprises a crown portion that is a plane having a surface that is substantially parallel with a main surface of the protected plate-like material structure, and a side wall portion extending from the crown portion.

With this structure, as shown in Figs. 1 and 3, for example, the plate-like protective film 31 can cover and protect the base film 22, because projections 33 and 34 are arranged along both sides the protective film 31 to contact the base film 22 on the tape-like structure 21 to define a space 37 between the protective film 31 and the base film 22. And the height of the projections 33 and 34 prevent the semiconductor chips 23 and interconnect patterns 24 from contacting the protective film 31.

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As shown in Fig. 7, moreover, according to the present invention, the base film 22 (while separate from the protective film) is taken from a reel 61 and processed to form tape-like structure 21. The tape-like structure 21 is then pressed by rollers 64 and 65 against the protective film 31, which is taken from reel 63, to cover one surface of the tape-like structure 21 with the protective film 31, which is assembled on the tape-like structure 21. The assembled films are then housed in a reel 62, such that at least one of the conductive layers 35 and 36 (see Figs. 3, 6 and 8 for example) contacts with a grounded conductive shaft of the reel 62 to discharge static electricity remaining on the tape-like structure 21 via the protective film 31.

As shown in Fig. 8, when the tape-like structure 21 is superimposed on the thin-plate-like protective film 31 and wound around the reel 62, the outside (the upper side in Fig. 8) of a predetermined portion of the tape-like structure 21 contacts the projections 34 on the inside (the lower side of FIG. 8) of the protective film 31 assembled on the portion of the tape-like structure 21. In addition, the inside of this portion of the tape-like structure 21 contacts the projections 33 on the outside the protective film 31 assembled on the more interior portion of the tape-like structure 21.

Thus, the projections 33 and 34 sandwich the opposite widthwise ends of the base film 22 of corresponding portion of

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the tape-like structure 21. And the assembled structure of the present invention thus comprises a tape-like structure 21, such as a TAB or COF carrier tape, and a protective film 31.

Hamuro et al, by contrast, is directed to a chip-like electronic component series for enabling efficient supply of chip-like electronic components, which are to be mounted on, for example, on a printed circuit board (column 1, lines 10-13). According to Hamuro et al a chip-like electronic component series is provided in which cavities formed in a tape are provided in shapes applicable to either (a) at least two types of chip-like electronic components of different geometry, or (b) at least two types of conditions or positions for retaining chip-like electronic components of identical geometry (col 2, lines 5-12).

That is, Hamuro et al is related to packaging chip-like electronic components (i.e. a resistor or condenser), which are housed in the projections. As shown in Fig. 1 of Hamuro et al, the chip-like component series thereof includes the tape 1, having the projections 4 defining cavities 5 for the electrical components 2, and the cover sheet 3. The cover sheet 3 is, for example, a transparent sheet of thermoplastic synthetic resin.

It is respectfully submitted that Hamuro et al therefore clearly differs from the present invention, since according to the present invention the projections are not provided as a housing for electrical components, but rather separate the

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protective film from the base film, and are provided to sandwich the base film when the laminated structure is rolled on a reel. In addition, according to the present invention, the space behind the projections is never covered by a cover sheet, in the manner disclosed by Hamuro et al.

In addition, it is respectfully submitted that Hamuro et al does not disclose, teach or suggest that each of the projections comprises: a crown portion having a surface that is a plane that is substantially parallel with a main surface of the protected plate-like material structure, and a side wall portion extending from the crown portion, as recited in amended independent claim 2.

Instead, it is respectfully submitted that Hamuro et al discloses a projection 4 having a two-tiered upper surface, so as to accommodate electrical components in different arrangements.

Therefore, it is respectfully submitted that Hamuro et al does not disclose, teach or suggest a crown portion having a surface that is a plane that is substantially parallel with a main surface of the protected plate-like material structure in the manner of the claimed present invention as recited in amended independent claim 2.

It is respectfully submitted, moreover, that Sakurai, like Hamuro et al, merely discloses a tape-shaped package for electrical components in which semiconductor chips are stored in

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the embossed portions of the tape, and a cover tape is sealed over the embossed portions. See Figs. 3 and 6 of Sakurai.

In addition, it is respectfully pointed out that as shown in Fig. 4C of Sakurai, for example, it is disclosed that the crown portion of the projections (embossed parts) thereof have several projections and depressions.

Therefore, it is respectfully submitted that Sakurai also does not disclose, teach or suggest a crown portion having a surface that is a plane that is substantially parallel with a main surface of the protected plate-like material structure in the manner of the claimed present invention as recited in amended independent claim 2.

In addition, it is noted that the Examiner has not asserted that JP 8-1916 discloses a crown portion having a surface that is a plane that is substantially parallel with a main surface of the protected plate-like material structure. And indeed, it is respectfully pointed out that JP 8-1916 discloses spacers 4 having a hemispherical form.

Still further, it is respectfully submitted that according to JP 8-1916 the spacer portions 23 are formed by providing rectangular mounting holes 24 along the two sides of the main body 22 for the spacer portions 23, which are injection molded in the holes 24. That is, the spacer tape disclosed by JP 8-1916 is formed from separate main body and projection components.

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By contrast, according to the present invention as recited in amended independent claim 2, the are formed by respective parts of the plate-like material main body to extend from a base portion of the plate-like material main body. And it is respectfully submitted that JP 8-1916 does not disclose, teach or suggest this feature of the present invention.

With respect to claim 8, moreover, it is respectfully submitted that neither JP 8-1916 nor Sakurai discloses, teaches or suggests crown portions having different widths as recited in claim 8.

With respect to claim 10, it is respectfully pointed out that according to JP 8-1916 the opposing projections are not shifted with respect to each other, and it is respectfully submitted that Sakurai also does not disclose opposing projections that are shifted with respect to each other. Therefore, it is respectfully submitted that neither JP 8-1916 nor Sakurai discloses, teaches or suggests the feature of the present invention as recited in claim 10 whereby an amount by which the projection provided at one widthwise end of the plate-like protective film is shifted with respect to a corresponding projection at another widthwise end is not smaller than 1/4 pitch and is not larger than 3/4 pitch.

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With respect to claim 13, it is respectfully submitted that neither JP 8-1916 nor Sakurai discloses, teaches or suggests gap portions having different widths, as recited in claim 13.

With respect to claims 17-19, moreover, it is respectfully submitted that JP 8-1916 does not disclose that the protected plate-like material structure comprises semiconductor chips, as recited in claim 19. And it is respectfully submitted that Hamuro et al and Sakurai do not disclose that the protected plate-like material structure comprises interconnect patterns, as recited in claims 17 and 18.

In view of the foregoing it is respectfully submitted that the present invention as recited in amended independent claim 2, as well as each of amended claims 5, 6, 8, 10 and 13-27 depending therefrom, clearly patentably distinguishes over Hamuro et al, Sakurai and JP 8-1916, taken singly or in any combination, under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10017-2023
Tel. No. (212) 319-4900
DH:db/iv
encs.